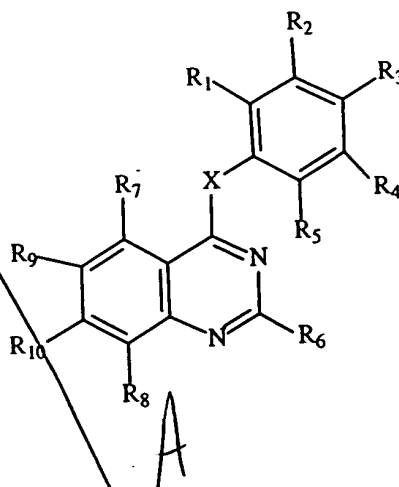


Claims

What is claimed is:

1. A compound of formula I:



wherein:

X is HN, $R_{11}N$, S, O, CH_2 , or $R_{11}CH$;

R_{11} is hydrogen, (C_1-C_4) alkyl, or (C_1-C_4) alkanoyl;

R_1-R_8 are each independently hydrogen, hydroxy, mercapto, amino, nitro, (C_1-C_4) alkyl, (C_1-C_4) alkoxy, (C_1-C_4) alkylthio, or halo; wherein two adjacent groups of R_1-R_5 together with the phenyl ring to which they are attached may optionally form a fused ring, for example forming a naphthyl or a tetrahydronaphthyl ring; and further wherein the ring formed by the two adjacent groups of R_1-R_5 may optionally be substituted by 1, 2, 3, or 4 hydroxy, mercapto, amino, nitro, (C_1-C_4) alkyl, (C_1-C_4) alkoxy, (C_1-C_4) alkylthio, or halo; and

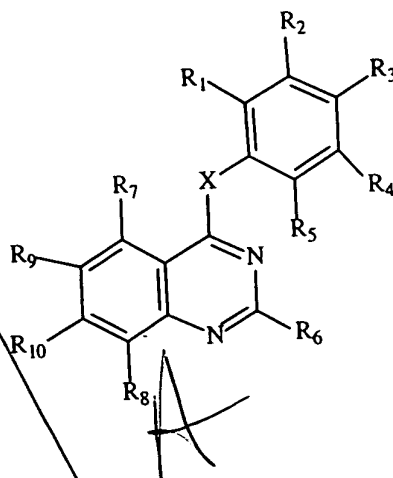
R_9 and R_{10} are each independently hydrogen, (C_1-C_4) alkyl, (C_1-C_4) alkoxy, halo, or (C_1-C_4) alkanoyl; or R_9 and R_{10} together are methylenedioxy; or a pharmaceutically acceptable salt thereof;

provided the compound is not 4-(4'-hydroxyl-phenyl)-amino-6,7-dimethoxyquinazoline.

2. The compound of claim 1 wherein X is R₁₁N.
3. The compound of claim 1 wherein X is HN.
4. The compound of claim 1 wherein each of R₁, R₂, R₄, R₅, R₆, R₇, and R₁₀ is H.
5. The compound of claim 1 wherein R₃ is (C₁-C₄)alkoxy, hydroxy, nitro, halo, trifluoromethyl, or NR₁₂R₁₃ wherein R₁₂ and R₁₃ are each independently hydrogen, (C₁-C₄)alkyl, (C₁-C₄)alkenyl, (C₁-C₄)alkynyl, (C₃-C₈)cycloalkyl, or heterocycle.
6. The compound of claim 1 wherein R₃ is hydroxy.
7. The compound of claim 1 wherein R₂ or R₃ is hydroxy.
8. The compound of claim 1 wherein R₂ or R₃ is hydroxy; and one of R₁-R₅ is halo.
9. The compound of claim 1 wherein R₂ or R₃ is hydroxy.
10. The compound of claim 1 wherein R₈ is (C₁-C₄)alkoxy.
11. The compound of claim 1 wherein R₉ is (C₁-C₄)alkoxy.
12. The compound of claim 1 which is 4-(3'-hydroxyl-phenyl)-amino-6,7-dimethoxyquinazoline; 4-(3',5'-dibromo-4'-hydroxyl-phenyl)-amino-6,7-dimethoxyquinazoline or 4-(3'-bromo-4'-hydroxyl-phenyl)-amino-6,7-dimethoxyquinazoline; or a pharmaceutically acceptable salt thereof.

13.

A pharmaceutical composition comprising a compound of formula I:



wherein:

X is HN, R₁₁N, S, O, CH₂, or R₁₁CH;

R₁₁ is hydrogen, (C₁-C₄)alkyl, or (C₁-C₄)alkanoyl;

R₁-R₈ are each independently hydrogen, hydroxy, mercapto, amino, nitro, (C₁-C₄)alkyl, (C₁-C₄)alkoxy, (C₁-C₄)alkylthio, or halo; wherein two adjacent groups of R₁-R₅ together with the phenyl ring to which they are attached may optionally form a fused ring, for example forming a naphthyl or a tetrahydronaphthyl ring; and further wherein the ring formed by the two adjacent groups of R₁-R₅ may optionally be substituted by 1, 2, 3, or 4 hydroxy, mercapto, amino, nitro, (C₁-C₄)alkyl, (C₁-C₄)alkoxy, (C₁-C₄)alkylthio, or halo; and

R₉ and R₁₀ are each independently hydrogen, (C₁-C₄)alkyl, (C₁-C₄)alkoxy, halo, or (C₁-C₄)alkanoyl; or R₉ and R₁₀ together are methylenedioxy; or a pharmaceutically acceptable salt thereof; and a pharmaceutically acceptable carrier.

14. The composition of claim 13 wherein R₂ or R₃ is hydroxy.

15. The composition of claim 13 wherein R₂ or R₃ is hydroxy; and one of R₁-R₅ is halo.

16. The composition of claim 13 wherein the compound of formula I is 4-(3'-hydroxyl-phenyl)-amino-6,7-dimethoxyquinazoline; 4-(3',5'-dibromo-4'-hydroxyl-phenyl)-amino-6,7-dimethoxyquinazoline or 4-(3'-bromo-4'-hydroxyl-phenyl)-amino-6,7-dimethoxyquinazoline; or a pharmaceutically acceptable salt thereof .

17. A pharmaceutical composition comprising 4-(4'-hydroxyl-phenyl)-amino-6,7-dimethoxyquinazoline; or a pharmaceutically acceptable salt thereof ; and a pharmaceutically acceptable carrier.

18. A therapeutic method for treating leukemia or lymphoma in a mammal comprising administering to the mammal in need thereof an effective amount of a JAK-3 inhibitor.

19. A therapeutic method for treating or preventing organ transplant rejection in a mammal comprising administering to the mammal in need thereof an effective amount of a JAK-3 inhibitor.

20. A therapeutic method for preventing or reducing ultraviolet B radiation-induced inflammatory response in a mammal comprising administering to the mammal in need thereof an effective amount of a JAK-3 inhibitor.

21. A therapeutic method for inhibiting the release of prostaglandin E₂ in a mammal comprising administering to the mammal in need thereof an effective amount of a JAK-3 inhibitor.

22. A therapeutic method for preventing or reducing UVB-induced skin edema or vascular permeability changes in a mammal comprising administering to the mammal in need thereof an effective amount of a JAK-3 inhibitor.

23. A therapeutic method for preventing or reducing ultraviolet B radiation-induced damage to epithelial cells or mutation frequency in skin in a mammal comprising administering to the mammal in need thereof an effective amount of a JAK-3 inhibitor.
24. A therapeutic method for protecting a mammal from tumorigenic effects of UVB light comprising administering to the mammal in need thereof an effective amount of a JAK-3 inhibitor.
25. A therapeutic method for inhibiting T-cell activity in a mammal comprising administering to the mammal in need thereof an effective amount of a JAK-3 inhibitor.
26. A therapeutic method for preventing or treating an autoimmune disease comprising administering to the mammal in need thereof an effective amount of a JAK-3 inhibitor.
27. A therapeutic method for preventing or treating graft-verses host disease comprising administering to the mammal in need thereof an effective amount of a JAK-3 inhibitor.
28. The method of any one of claims 18-27 wherein the compound is a compound of claim 1.
29. The method of any one of claims 18-27 wherein the JAK-3 inhibitor is 4-(4'-hydroxyl-phenyl)-amino-6,7-dimethoxyquinazoline; or a pharmaceutically acceptable salt thereof.

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A1

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D3